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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/553,083

10/11/2005

Takuma Hojo

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EXAMINER

HAMILTON, CYNTHIA

ART UNIT

PAPER NUMBER

1752

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
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3 MONTHS

01/08/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 01/08/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/553,083

Applicant(s)

HOJO ET AL.

Examiner

Cynthia Hamilton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/11/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The examiner notes that in view of claim 3 dependent upon claim 1 that "is" is clearly open ended language as used by applicants and not equivalent to "consisting of". Claim 3 expands the component (A) of claim 1 to a mixture of polymers of differing structure. However, claim 1 defines resin component (A) by using "said resin component (A) is a polymer ...", as required by MPEP 2111.03, Revision 5, August 2006 under **OTHER TRANSITIONAL PHRASES**. If applicants did not intend this to be open ended then they need to make use of "consisting" language. However because applicants use "is" then further expands the "is" components in a dependent claim, the examiner has considered "is" as an equivalent of "comprises" for examination purposes.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

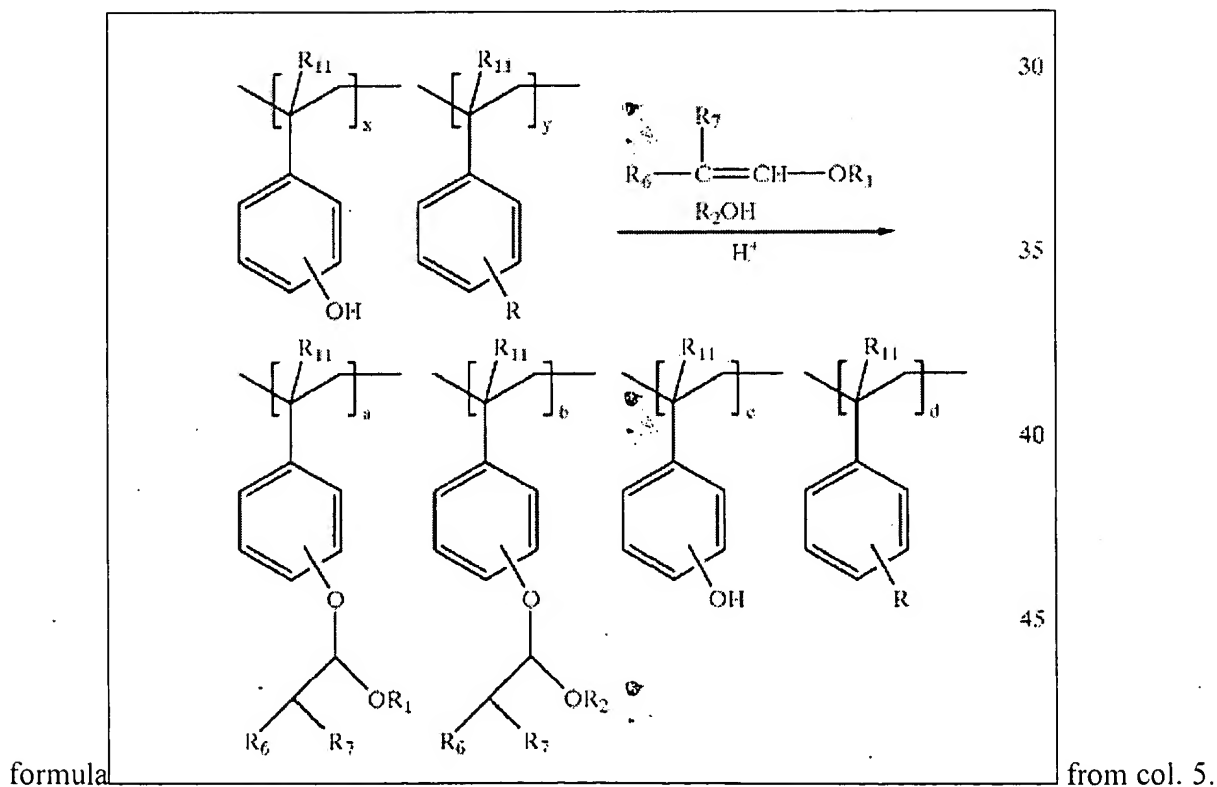
3. Claims 1, 4-5, 8 and 10-11 rejected under 35 U.S.C. 102(b) as being anticipated by Malik et al (SPIE Vol. 3678). With respect to instant claims 1, 4-5, 8 and 10-11, the naphthylethyl Structure R2 of the acetal –derivatized hydroxy styrene based polymers of Malik et al, used in photoresists and methods of imaging set forth by Malik et al anticipate the instant invention as the naphthylethyl group is an aromatic polycyclic hydrocarbon group and nopyl is an aliphatic polycyclic group. With respect to instant claim 10, the compositions of Malik et al can inherently be used in a method of forming resist patterns comprising an exposure step that uses an electron beam.

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4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malik et al (6,133,412) in view of Malik et al (SPIE Vol. 3678). With respect to instant claims 1-11, Malik et al teach the instant compositions with the exception of showing a working example with the specific polymer used in a specific composition. However, Malik et al make polymers as examples which read on the instant polymers used in Examples 12, 13, 17 and 29 and disclose the use of species wherein R_2 of Malik et al is naphthyl, naphthyl ethyl or from nopol which is a polycyclic aliphatic alcohol cited in col. 6, lines 51-65 in the



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The only polymers made which fit the instant polymer also fit the required instant polydispersity and molecular weight. Mixtures of these polymers are also taught by Malik et al in col. 6-7, The use of amines such as triisopropylamine are taught in col. 15, lines 39-55 and the process of imaging compositions with these polymers in col. 16 of Malik et al teach all of the instant invention with respect to these species of polymers for the tailoring of photoresists by mixing acetals. The use of naphthyl or nopyl groups for reducing volatility and contamination of the optics as well as improving etch resistance as taught by Malik et al (SPIE VOL. 3678) to form part of the mixture of Malik et al (6,133,412) would have been prima facie obvious.

6. Claims 1, 4-6, 8 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwanaga Shinichiro et al (JP 11-002902) as evidenced by the Machine English translation thereof and AN 1999:23513 and Derwent-Acc-No: 1999-126674. With respect to instant claims 1, 4-6, 8 and 10-11, Iwanaga Shinichiro et al teach all but the specific resin of the instant methods and compositions. However, in [0023] R5 and R4 of Iwanaga Shinichiro et al are defined by the same group of radicals and this group as shown by [0023] to [0027] of bornyl groups and naphthyl groups and norbornyl groups. Thus, with respect to instant claims 1, 4-6, 8 and 10-11, the use of any of the aromatic or cycloaliphatic groups given as useful for forming the R5 group either as acetals or ketals would have been prima facie obvious to form the chemically sensitizable positive resists of Iwanaga Shinichiro et al (JP 11-002902) when superior sensitivity and resolution are desired in a patterned photoresist as taught by Iwanaga Shinichiro et al (JP 11-002902) their abstract.

7. Claims 1, 4-8 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanabe Takayoshi et al (JP 11-030865) as evidenced by the Machine English translation thereof.

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With respect to instant claims 1, 4- 8 and 10-11, Tanabe Takayoshi et al teach all but the specific resin of the instant methods and compositions. However, R5 is chosen from a group including aryl group of carbon numbers 6-10 in [0006] of Tanabe Takayoshi et al and [0014] this is inclusive of 1-naphthyl group and 2-naphthyl group. In the only example of resin in [0035] $M_w/M_n = 1.53$ shows the resins used are inclusive of the polydispersities of less than 2.0, i.e. 1.53. In [0019] the resin is preferred to have a M_w of 3,000 to 40,000. Thus, with respect to instant claims 1, 4- 8 and 10-11, the use of any of the listed R5 groups of Tanabe Takayoshi et al to form the radiation sensitive resins useful as positive resists for micro processing would have been prima facie obvious as equivalent to those actually used in the working examples to form excellent resolution and pattern profile as set forth in the Abstract.

8. Claims 1, 4-8 and 10-11 are rejected under 35 U.S.C. 102(a) as being anticipated by Momoto Atsushi et al (JP 2003-307840) as evidenced by the Machine English translation thereof. With respect to instant claims 1, 4-8 and 10-11, Examples 7 and and resins 7-8 of Momoto Atsushi et al anticipate the instant compositions and methods as shown in [0086]-[0092], and [0145]-[0162] with respect to polycyclic aliphatic groups when adamantyl is the group. "A generic claim cannot be allowed to an applicant if the prior art discloses a species falling within the claimed genus." The species in that case will anticipate the genus. *In re Slayter*, 276 F.2d 408, 411, 125 USPQ 345, 347 (CCPA 1960); *In re Gosteli*, 872 F.2d 1008, 10 USPQ2d 1614 (Fed. Cir. 1989).

9. Claims 1, 4-7, and 10-11 are rejected under 35 U.S.C. 102(a or e) as being anticipated by Adams et al (US 2003/0232273 A1). With respect to instant claims 1, 4-7, and 10-11, the use of

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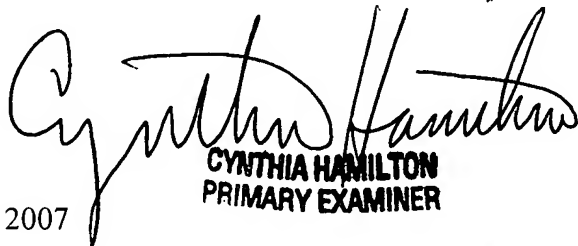
the resin set forth in Example 1 as an example of a resin "which can be prepared as set forth" in the compositions and processes in [0058] to [0062] anticipate the instant invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Hamilton whose telephone number is 571-272-1331.

The examiner can normally be reached on Monday through Friday 9:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on (571) 272-0729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA, OR CANADA) or 571-272-1000.



**CYNTHIA HAMILTON
PRIMARY EXAMINER**

Cynthia Hamilton
Primary Examiner
Art Unit 1752

January 2, 2007